NAVAIR 16-30ARC131-1

TM 11-5820-670-12

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL MAINTENANCE MANUAL

RADIO SET AN/ARC-131

HEADQUARTERS, DEPARTMENT OF THE ARMY
DECEMBER 1966

TECHNICAL MANUAL
No. 11–5820–670–12

HEADQUARTERS
DEPARTMENT OF THE ARMY,
WASHINGTON, D. C. *13 December 1966*

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RADIO SET AN/ARC-131

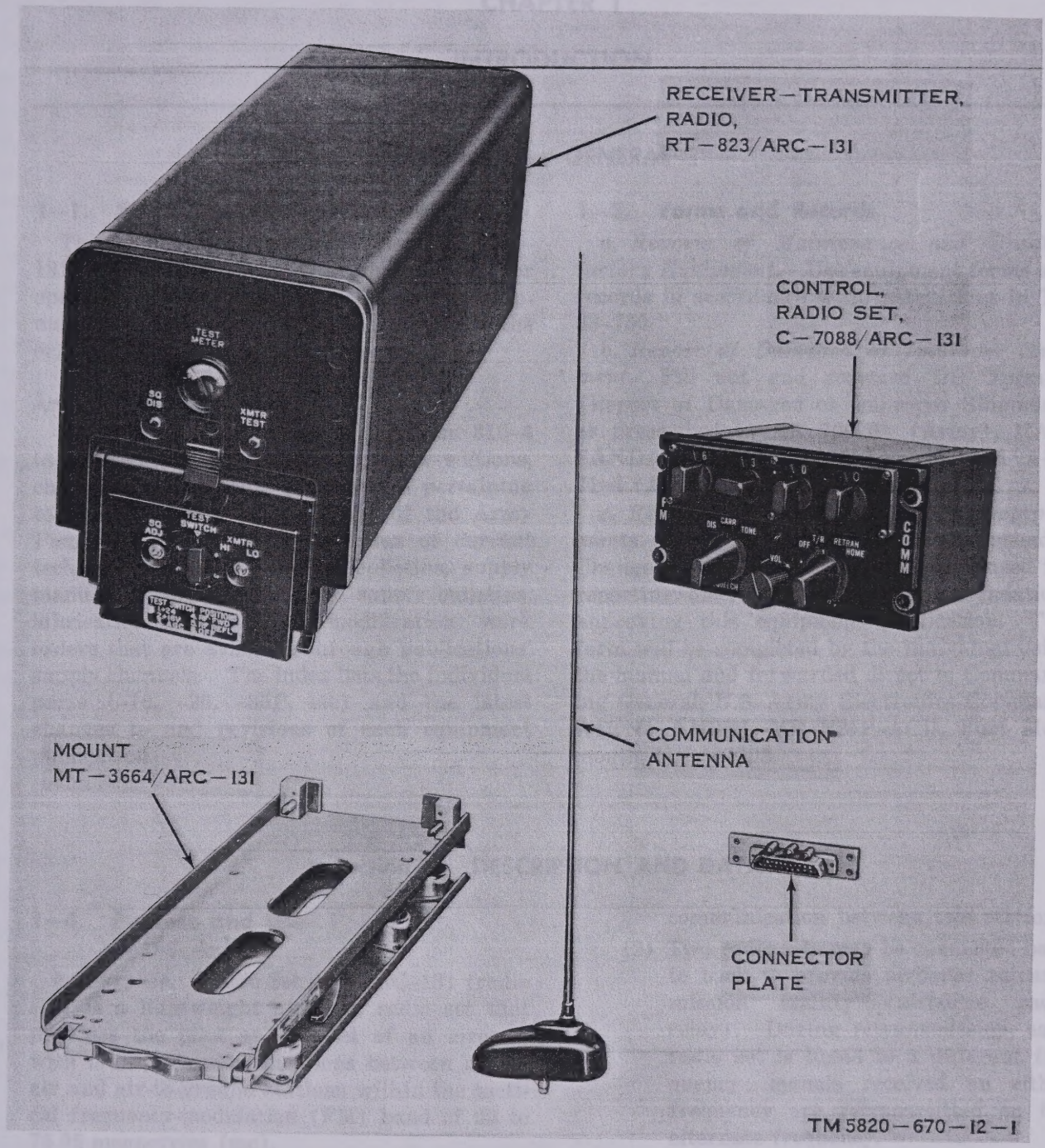
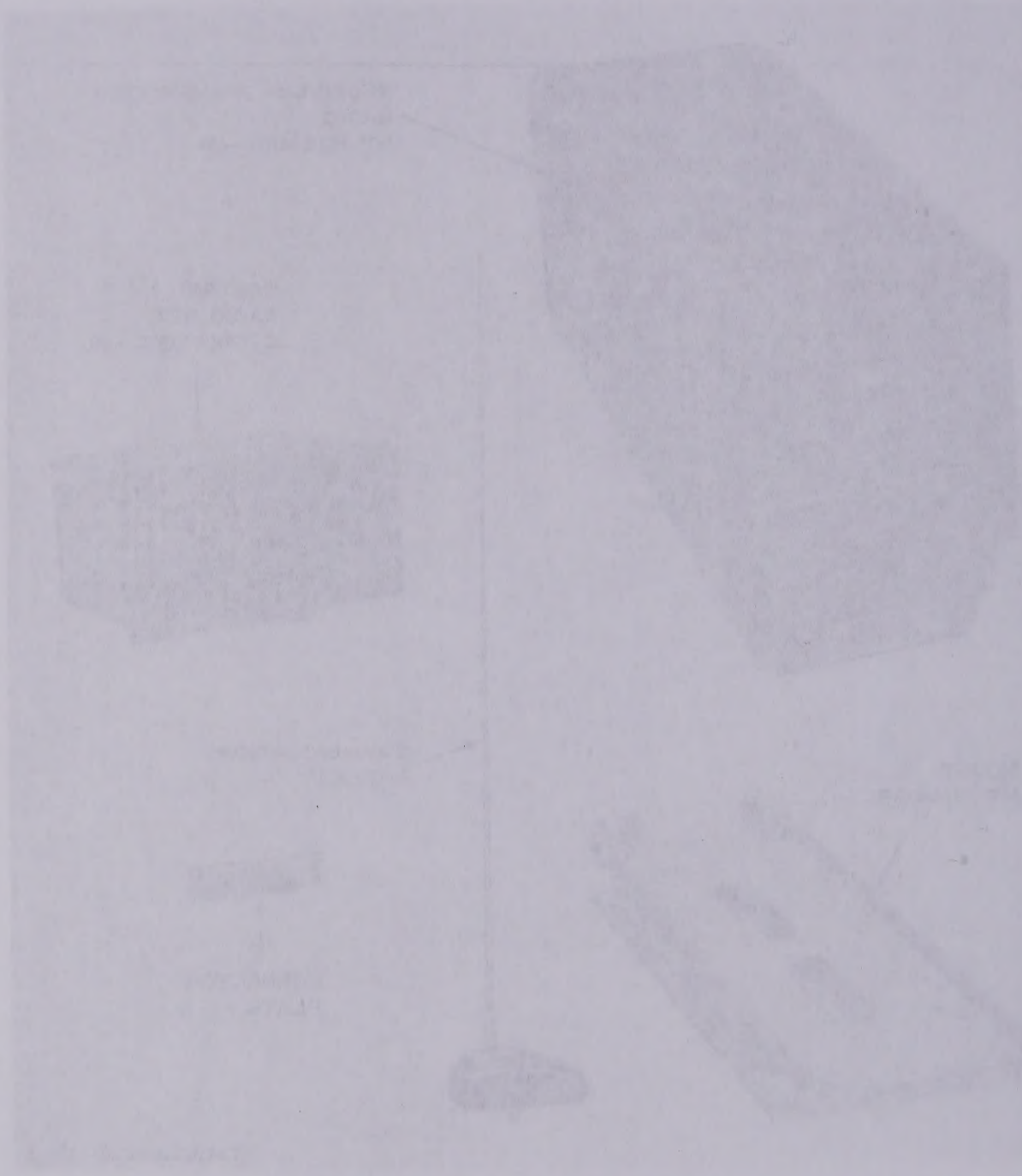


Figure 1–1. Radio Set AN/ARC–131 with communication antenna.



CHAPTER 1

INTRODUCTION

Section I. GENERAL

1–1. Scope

This manual describes Radio Set AN/ARC–131 (fig. 1–1). It includes instructions for operation, cleaning, and inspection of the equipment, and replacement of parts available to the organizational maintenance repairman.

1–2. Index of Publications

Refer to the latest issue of DA Pam 310–4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment. Department of the Army Pamphlet No. 310–4 is an index of current technical manuals, technical bulletins, supply manuals (types 7, 8, and 9), supply bulletins, lubrication orders, and modification work orders that are available through publications' supply channels. The index lists the individual parts (–10, –20, –35P, etc) and the latest changes to and revisions of each equipment publication.

1–3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions in TM 38–750.

b. Report of Damaged or Improper Shipment. Fill out and forward DD Form 6 (Report of Damaged or Improper Shipment) as prescribed in AR 700–58 (Army), NAVSANDA Publication 378 (Navy), and AFR 71–4 (Air Force).

c. Reporting of Equipment Manual Improvements. DA Form 2028 (Recommended Changes to DA Publications) will be used for reporting discrepancies and recommendations improving this equipment publication. This form will be completed by the individual using the manual and forwarded direct to Commanding General, U.S. Army Electronics Command, ATTN: AMSEL–MR–NMP–ACD, Fort Monmouth, N.J., 07703.

Section II. DESCRIPTION AND DATA

1–4. Purpose and Use
(fig. 1–1)

a. Purpose. Radio Set AN/ARC–131 (radio set) is a lightweight airborne radio set that provides the pilot and copilot of an aircraft with two-way communications between air-to-air and air-to-ground stations within the tactical frequency-modulation (FM) band of 30 to 75.95 megacycles (mc).

b. Use. Radio Set AN/ARC–131 is used in aircraft for air-to-air and air-to-ground communications, airborne retransmission, and FM and continuous-wave (cw) homing.

(1) The radio set permits normal voice communication between two stations.

(2) Two radio sets may be connected back to back to provide airborne retransmission facility (airborne radio relay). During retransmission, each radio set is tuned to a different frequency; signals received on either frequency are retransmitted on the alternate frequency.

(3) When used with a homing antenna group and a homing indicator (para 1–13), the radio set provides the pilot with an fm or cw homing facility, which allows the pilot to home on a

signal transmitted within the frequency range of 30 to 75.95 mc.

(4) Facilities are provided to connect additional equipment to permit secure communication operation (X-mode operation).

1–5. Technical Characteristics

a. General.

Frequency range	30.00 to 75.95 mc.
Number of channels and spacing	920 channels, spaced 50 kc.
Number of crystals in synthesis system	14 crystals.
Channel change time	7 seconds maximum at −40° C.
Frequency stability	Within 3.5 kc of selected channel center frequency in less than 20 seconds.
Modes of operation	FM voice, homing, retransmission, or X-mode.
Input voltage and current requirements	24 to 29 volts dc, transmit, 4.0 amperes maximum; receive 1.0 ampere maximum.
Audio response, narrow band	500 to 3,000 cps.
Audio response, wide band	500 to 20,000 cps.
Security adapter	Uses KY–28 or KY–8.

b. Transmitter.

Power output, high	10 watts minimum.
Power output, low	1 watt nominal.
Frequency control	Crystal, indirect synthesis.
Duty cycle	Continuous transmission to 15,000 feet at +150° F. ambient or 35,000 feet at 85° F.
RF output impedance	50 ohms.
Audio input impedance	150 ohms.
Overall system distortion	Narrow band less than 10 percent; wide band less than 7 percent.
Signal-plus-noise-to-noise ratio	Greater than 50 db.
Deviation	Narrow band 8 kc; wide band 20 kc; 150-cps tone 3 kc.

c. Receiver.

Receiver type	Single conversion superheterodyne.
Intermediate frequency	11.5 mc.
Signals received	FM voice, or tone.
IF selectivity	32 kc minimum at 6-db points; 80 kc maximum at 60-db points; 100 kc maximum at 85-db points.
Sensitivity	RF input of 0.5 microvolt modulated at 1,000 cps with ±8–kc deviation produces a signal-plus-noise-plus deviation to noise plus deviation ratio of 10 db (50 milliwatts) into a 150-ohm load.
Audio output characteristics	50 milliwatts into a 150-ohm load, frequency response 500-3,000 cps.
Audio distortion	Narrow band less than 8 percent; wide band less than 5 percent.
Types of squelch	Carrier (noise) or tone (150 cps).

1–6. Components of Radio Set
(fig. 1–1)

Quantity	Item	Dimensions (in.)			Unit weight (lb)
		Height	Depth	Width	
1	Receiver-Transmitter, Radio RT–823/ ARC–131.	7 15/16	15¼	6	25.19
1	Control, Radio Set C–7088/ARC–131	3	6 7/16	5¾	2.31
1	Mounting MT–3664/ARC–131	2⅛	14¼	5¾	1.7
1	Connector Plate MX 709110–801				

1–7. Common Names

A list of nomenclature assignments for the components covered in this manual is given below. A common name is indicated after each item.

Nomenclature	Common name
Radio Set AN/ARC–131	Radio set
Receiver-Transmitter, Radio RT–823/ARC–131.	Receiver-transmitter
Control, Radio Set C–7088/ ARC–131.	Control unit
Mounting MT–3664/ARC–131	Mounting

1–8. Description of Radio Set
(fig. 1–1)

The radio set consists of a receiver-transmitter, control unit, mounting, and a connector plate.

1–9. Description of Receiver-Transmitter
(fig. 1–2)

The receiver-transmitter is a separately housed unit that contains the receive and transmit circuits of the radio set. The unit is protected by an aluminum dust cover. A blower fan at the rear of the unit forces cooling air through the intake grill, across the heat exchanger, and exhausts at the top rear of the unit. Internal air circulation is unnecessary within the radio set. A transmitter test pushbutton, a squelch disable pushbutton, a squelch adjust potentiometer, a test meter, meter function switch, and a transmitter power output switch are on the receiver-transmitter front panel (fig. 1–2) for use by maintenance personnel. The receiver-transmitter is secured to the mounting (para 3–11*b*) by a locking handle. Three coaxial connectors and a multiple-pin connector, at the rear of the receiver-transmitter, mate with connectors on the connector plate for the required antenna and electrical connections.

1–10. Description of Mounting
(fig. 1–3)

The mounting consists of a mounting shelf, a mounting tray, six shock isolators, four ground strap assemblies, two guide pins, and facilities for mounting a connector plate. A locking handle on the receiver-transmitter engages two holddown bars in the mounting shelf to secure the receiver-transmitter to the mounting.

1–11. Description of Connector Plate
(fig. 1–4)

The connector plate consists of a mounting plate, a multiple-pin connector, three coaxial connectors, four spacers, and mounting hardware. All electrical connections (except radio-frequency (rf) signals) are made through the multiple-pin connector which is fastened to the rear of the mounting. The rf signals are coupled between the receiver-transmitter and the antennas through the coaxial connectors and aircraft coaxial cables. The connector plate is secured to the mounting by the hardware and spacers.

1–12. Description of Control Unit
(fig. 1–5)

a. The control unit is separately housed and contains all the operator controls and indicators for the radio set. The control unit front panel is illuminated by panel lamps behind the panel.

b. The control unit contains a panel lamp assembly (behind the front panel), a squelch switch, a volume control, a mode switch, four

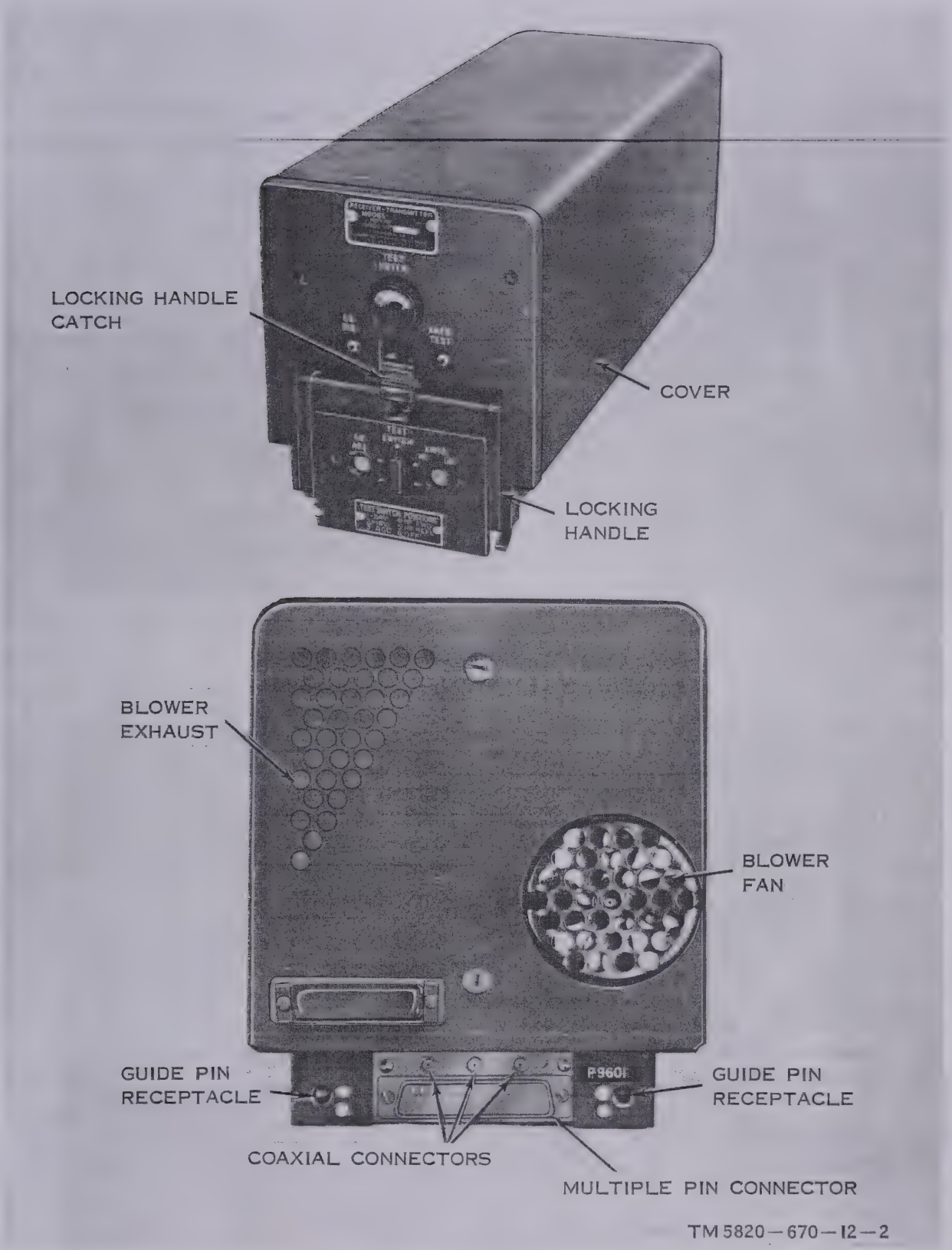


Figure 1–2. Receiver-transmitter.

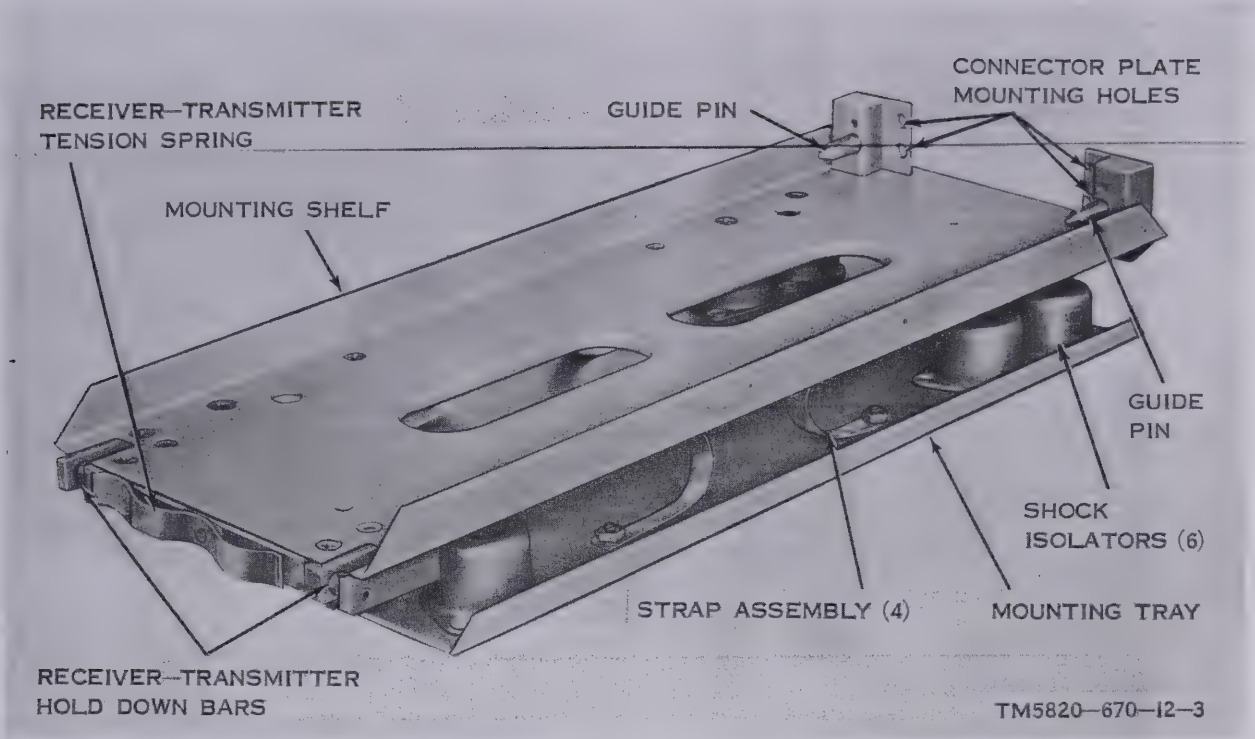


Figure 1–3. Mounting.

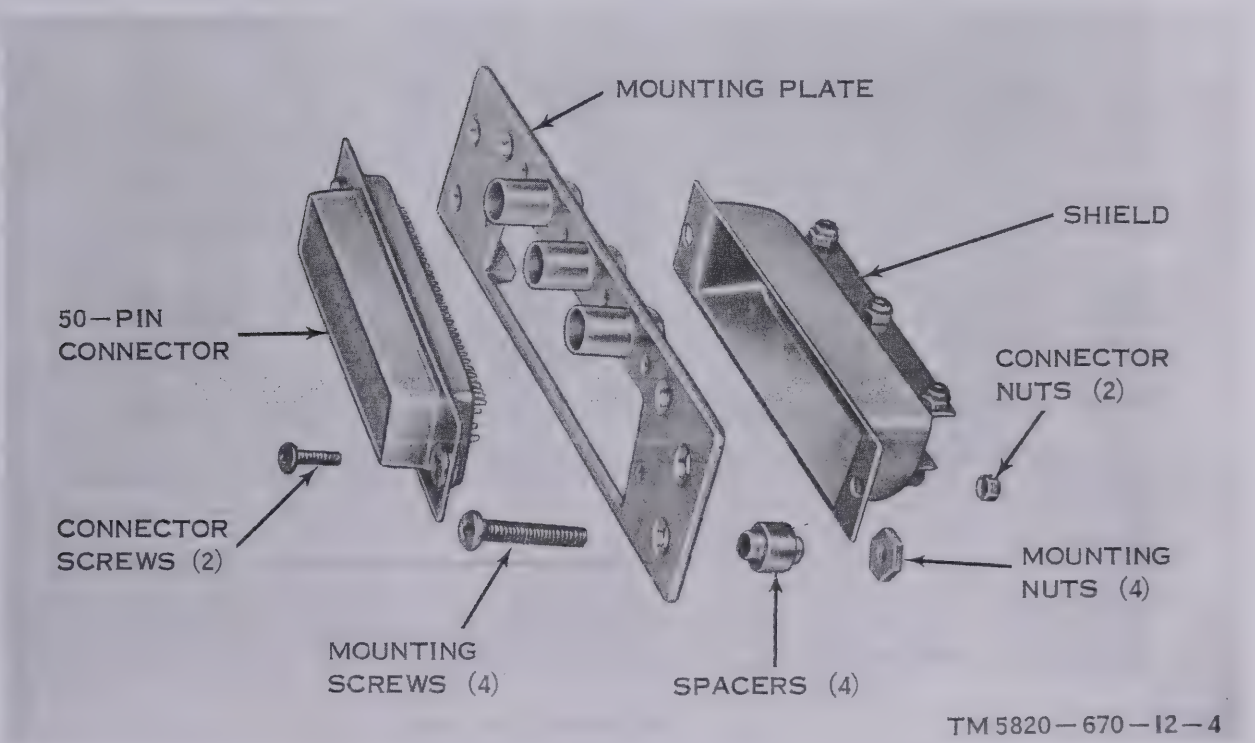


Figure 1–4. Connector plate.

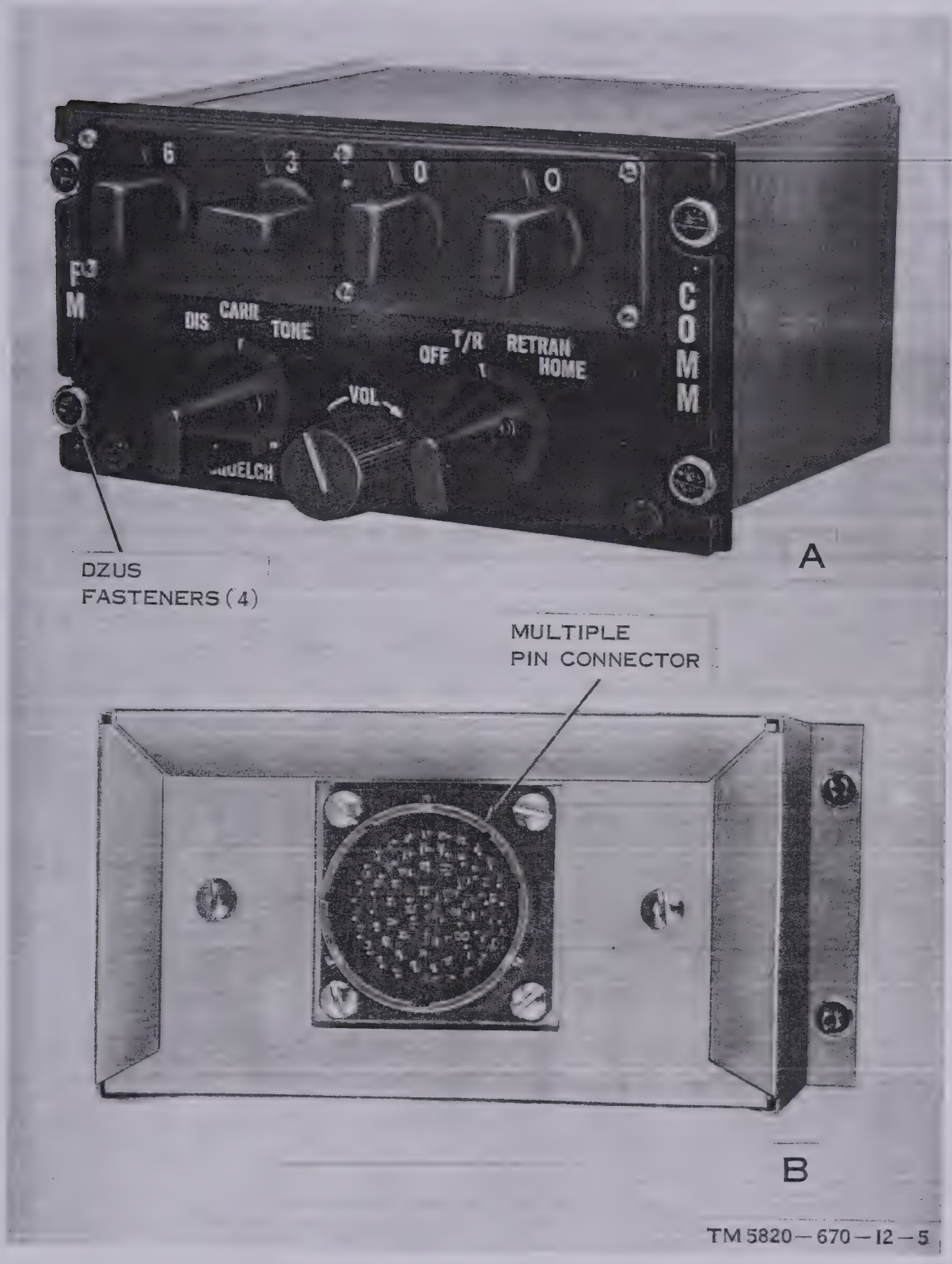


Figure 1–5. Control unit.

frequency selector controls.

c. The control unit is secured to the aircraft equipment rack by four Dzus fasteners. All electrical connections are made through a connector at the rear of the control unit.

1–13. Additional Equipment Required

The following equipment is not supplied as part of the radio set but is required for its use.

a. Power Source. A direct-current (dc) power source capable of supplying 24 to 29 volts dc (27.5 volts dc nominal) at 4 amperes is required (normal aircraft 27.5 volts dc power).

b. Communications Antenna. Antenna AS–1703/AR (or equivalent) is required as a part of the antenna system.

c. Antenna Coupler. Coupler, Antenna CU–942/ARC–54 or CU–943/ARC–54 (or equivalent) is required as a part of the antenna system.

d. Homing Antenna. Antenna AS–1922/ARC (or equivalent) is required to use the homing capabilities of the radio set.

e. Homing Indicator. A homing indicator (Indicator ID–48/ARN or equivalent) capable of providing left-right, over target, and signal strength indications is required when using the homing capabilities of the radio set.

f. Headset-Microphone. Headset-Microphone H–101/U (or equivalent) is required for voice communication. If the headset-microphone does not include a transmit button, some provision must be made for keying the transmitter.

g. Interconnecting Cable. An electrical harness and coaxial cabling are required for interconnection between major units of the radio set. These interconnecting cables are normally already installed in the aircraft.

CHAPTER 2

OPERATING INSTRUCTIONS

Section 1. OPERATION

2–1. General

The radio set is operated from a position convenient to both pilot and copilot of the aircraft. Except for certain controls unique to the aircraft, such as power, interphone, panel lamps, microphone, and headset control, all operating controls are on the control unit front panel.

2–2. Control and Indicators

(fig. 2–1)

The operating controls and their functions are described below.

Control or indicator	Function
Mode control switch (four-position switch)	Applies power to the radio set and selects the mode of operation.
	Switch position / Operating mode
	OFF — Turns off primary power.
	T/R (transmit/receive) — Applies power. Radio set operates in normal communication mode (reception). (Aircraft transmit switch must be depressed to transmit.)
	RETRAN (retransmit) — Applies power. Radio set operates as a two-way relay station. (Two radio sets are required.)
	HOME — Applies power. Radio set operates as a homing facility. (Requires a homing antenna and indicator.)
VOL control	Adjusts the audio output level of the radio set.
SQUELCH switch (three-position rotary switch)	Selects the desired squelch mode as follows:
	Switch position / Operating mode
	DIS (disable) — Squelch circuits are disabled.
	CARR (carrier) — Squelch circuits operate normally in presence of any carrier.
	TONE — Squelch opens (unsquelches) only on selected signals (signals containing a 150-cps tone modulation).
Tens megacycle frequency selector	Selects the tens megacycle digit of the operating frequency.
Units megacycle frequency selector	Selects the units megacycle digit of the operating frequency.
Tenths megacycle frequency selector	Selects the tenths megacycle digit of the operating frequency.
Hundredths megacycle frequency selector	Selects the hundredths megacycle digit of the operating frequency.
Frequency indicator	Displays the operating frequency of the radio set.

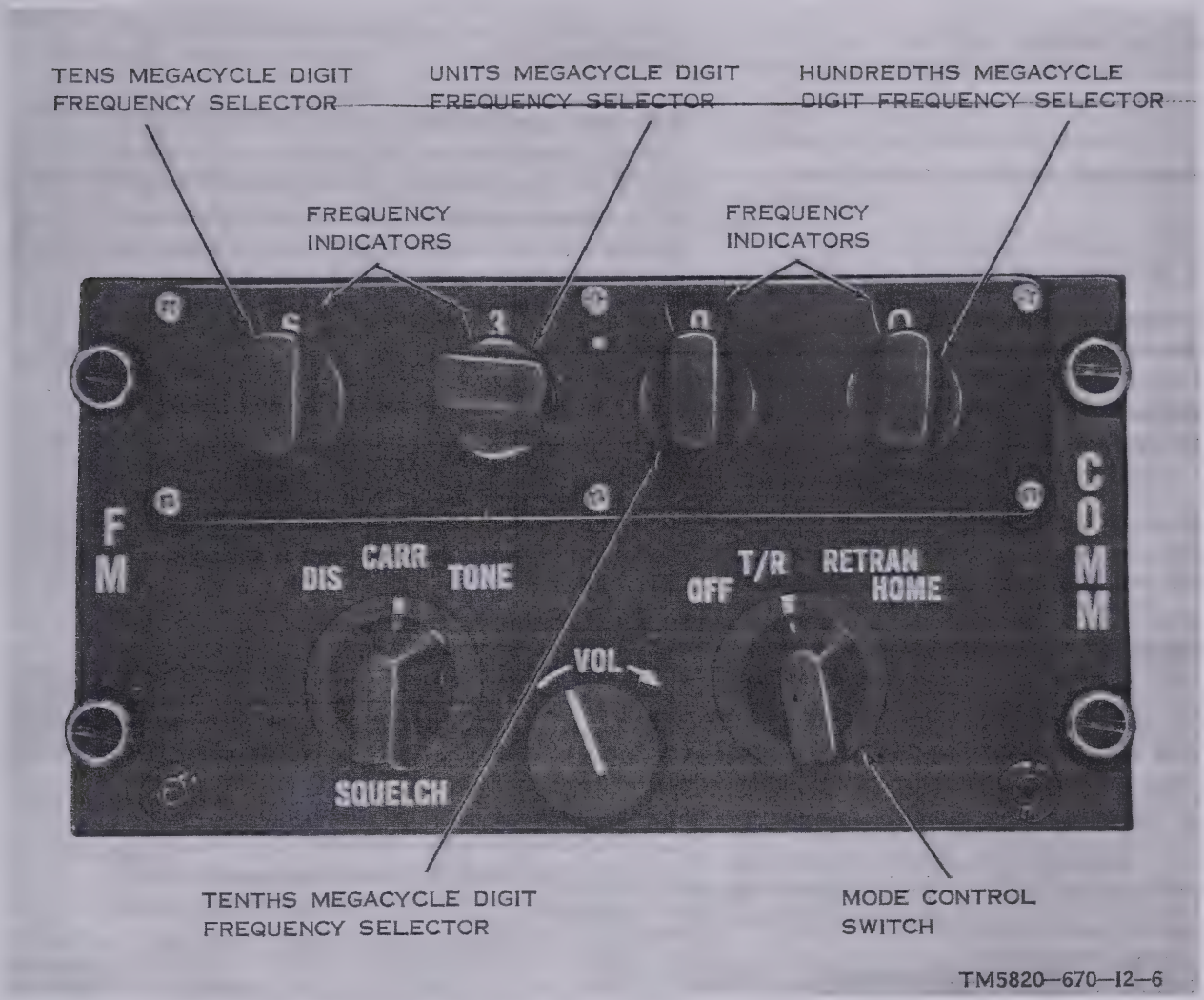


Figure 2–1. Control unit front panel controls and indicators.

2–3. Modes of Operation

a. The radio set is operated remotely from the aircraft cockpit by the use of the control unit (fig. 2–1). Depending on the settings of the control unit controls (para 2–2), the radio set can be used for the following types of operation:

(1) Two-way voice communication:

(*a*) Push-to-talk, squelch disabled.

(*b*) Push-to-talk, carrier squelch.

(*c*) Push-to-talk, selective calling (tone squelch).

(2) Retransmission (two radio sets required):

(*a*) Retransmission, carrier squelch.

(*b*) Retransmission, selective calling (tone squelch).

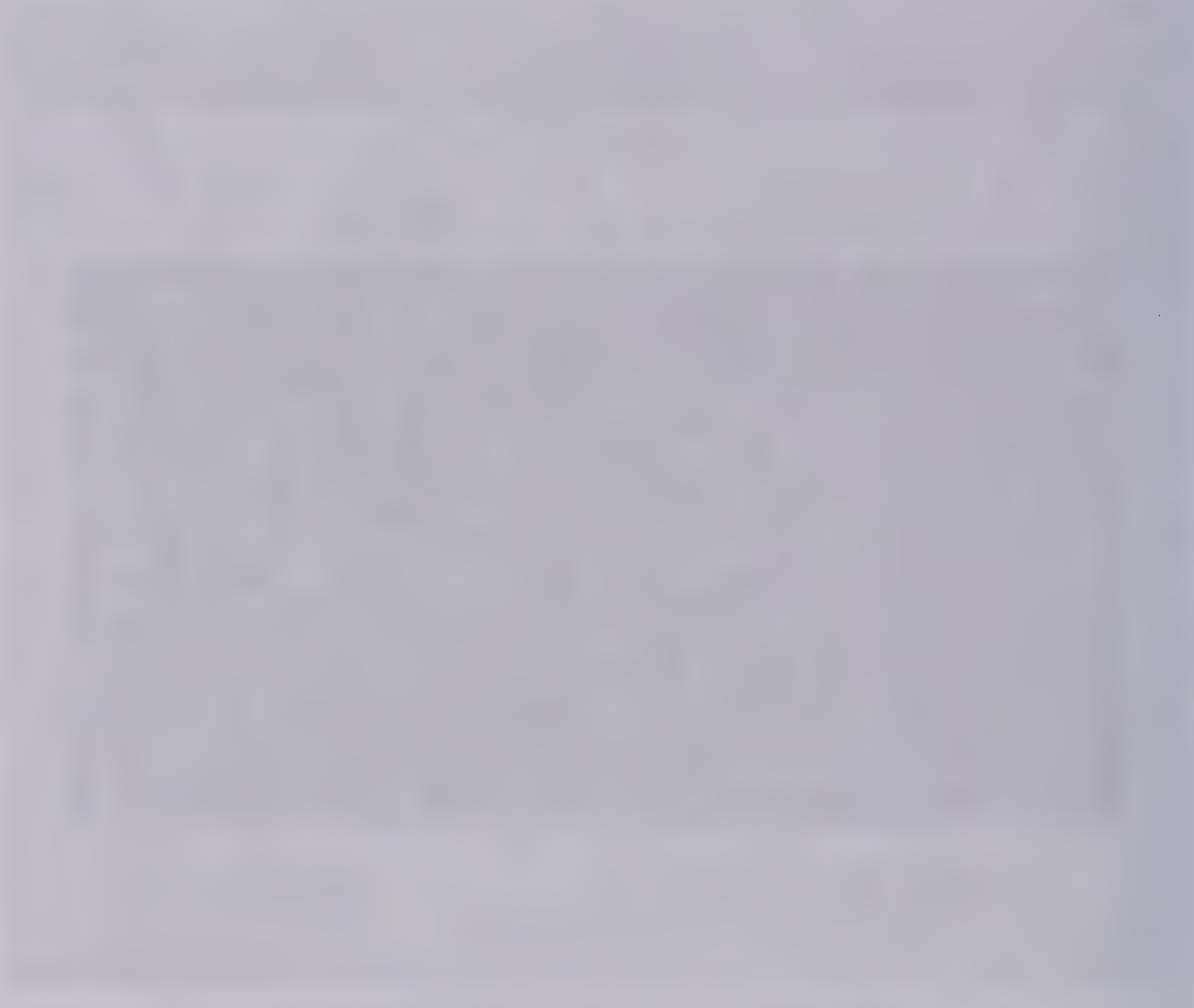
(3) Homing (homing indicator and antenna system required).

b. To use the radio set for any particular type of operation, perform the following procedures:

(1) Starting procedures (para 2–4).

(2) Procedure for type of operation (para 2–5, 2–6, or 2–7).

(3) Stopping procedures (para 2–8).



2–4. Starting Procedures

Before starting the radio set, check the settings of the controls that pertain to communication equipment in the aircraft in which the equipment is installed. For applications of primary power, these controls may include a radio or communication master power switch, a push-to-reset circuit breaker, and an intercommunication switch. Controls necessary to operate the microphone may be on the control column, the floorboards, handwheel, or microphone. For proper operation and settings of these controls, refer to the applicable aircraft technical manual; however, the following procedures are standard in most aircraft.

a. Place the aircraft master power switch to on.

b. Energize the aircraft interphone system.

c. Place the applicable aircraft receiver switch to on.

d. See that the push-to-reset circuit breaker that applies power to the radio set is depressed.

2–5. Two-Way Voice Communication
(fig. 2–1)

Start the equipment (para 2–4) and proceed as follows for two-way voice communication. (Unless otherwise stated, all operating controls are on the control unit).

a. Set the mode control to T/R.

b. Adjust the frequency controls for the desired operating frequency.

Note. A channel-changing tone should be heard in the headset while the radio set is tuning. When the tone stops, the radio set is tuned.

c. Set the SQUELCH control for the desired squelch mode. The DIS position disables the squelch circuits, CARR position provides normal carrier squelch, and TONE position provides selective calling (tone squelch).

d. After a 20-second warmup, depress the aircraft push-to-talk (location will vary according to aircraft type and crew position) and talk into the microphone. Note that sidetone is heard in the headset; adjust the VOL control for comfortable volume.

2–6. Retransmit Operation
(fig. 2–1)

Note. An installation including two radio sets is required for retransmit operation.

Start the equipment (para 2–4) and proceed as follows for retransmit operation:

a. Set the mode controls (both control units) to RETRAN.

b. Set the SQUELCH controls (both control units) for the desired squelch mode.

Note. Do not attempt retransmit operation with the SQUELCH controls set to DIS. Both controls must be set to CARR or TONE.

c. Adjust the frequency controls (both control units) for the desired operation frequencies.

Note. To operate satisfactorily, the two radio sets must be tuned to frequencies at least 3 mc apart. When antennas are spaced greater than 8 feet apart, the frequency spacing may be decreased.

d. Check for proper operation by monitoring the relayed signals.

Note. Either radio set can be used for normal push-to-talk operation by depressing the transmit button.

e. The selected transmitter power output may either be 1 watt or 10 watts, depending upon the length of relay required. This switch is a maintenance setting on the front of the receiver-transmitter.

2–7. Homing Operation
(fig. 2–1)

Note. A homing indicator and a homing antenna system (para 1–13) are required for homing operation.

Start the equipment (para 2–4) and proceed as follows for homing operation:

a. Set the mode control to HOME.

b. Adjust the frequency controls to the frequency of the homing station. (Any signal within the frequency range of the radio set can be used for homing, if it is strong enough, as indicated by the disappearance of flags on the homing indicator.)

c. The SQUELCH control may be set to CARR or TONE however, the carrier squelch is automatically selected by an internal contact arrangement on the HOME position. Opera-

tion is possible in the DIS position; however, the flags will be inoperative.

d. Observe the homing indicator. If sufficient signal strength is indicated (flags lowered), note the position of the right-left vertical pointer.

e. Fly the aircraft toward the homing station by heading in the direction that causes the homing indicator right-left vertical pointer to position itself in the center of the indicator scale. To insure that the aircraft is not heading away from the homing station, change the heading slightly and note that the homing indicator vertical pointer reflects in the direction opposite that of the turn.

f. Over-the-station position is indicated by the homing indicator horizontal pointer. Increasing signal strength as the aircraft approaches the homing station is indicated by rising of the horizontal pointer.

2–8. Stopping Procedures

a. Set the control unit mode control (fig. 2–1) to OFF.

b. Place the applicable aircraft receiver switch to off.

c. Remove power from aircraft interphone system.

d. Release the push-to-reset circuit breaker button.

e. Place the aircraft master power switch to off.

Section II. PREFLIGHT (DAILY) OPERATIONAL CHECK

2–9. General

a. An operational check (para 2–10) of the radio set should be made prior to a flight.

b. The pilot or copilot should report any malfunction or failure noted in flight, or any discrepancy noted in the preflight inspection. Refer to TM 38–750 for reporting deficiencies or malfunctions.

2–10. Operational Check

a. General. The following preflight checks should be made during engine warmup. The pilot or copilot should perform the checks while noting the following:

(1) Loose or binding knobs on control unit.
(2) Clarity of sidetone.
(3) Clarity of received signal.
(4) Ease of tuning.
(5) Accuracy of tuning.
(6) Smooth operation of controls with no erratic indication of binding.
(7) Clarity of transmission.

b. Preliminary.

(1) Place the aircraft master power switch to on.
(2) Place the aircraft interphone switch to on.
(3) Place the applicable aircraft receiver switch to on.
(4) Check to insure that the dc circuit breaker that applies power to the radio set is on.

c. Radio Set Operation.

(1) Set the control unit mode control switch to T/R.
(2) Set the SQUELCH control to CARR.
(3) Adjust the frequency controls to the frequency of a local fm station.
(4) Depress the transmit button, speak into the microphone, and establish two-way communication with the local station. Set the VOL control to a comfortable level during communication.

d. Homing.

(1) Set the control unit mode control to on.
(2) Adjust the frequency controls to the frequency of a known local fm station.
(3) Set the SQUELCH control to CARR.
(4) Observe the homing indicator. The vertical pointer flag should disappear and the vertical pointer should deflect right or left, depending on bearing to transmitter (indicator pointer remains centered if aircraft is aligned with bearing to transmitter).

e. Stopping Procedure. Set the mode control switch to OFF.

CHAPTER 3

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. GENERAL

Note. The pilot will not perform preventive or corrective maintenance.

3–1. Scope of Organizational Maintenance

This chapter contains instructions covering organizational maintenance of the radio set. The instructions include the following duties to be performed by the organizational electronic equipment repairman or crewchief. The tools and materials required are listed in paragraph 3–2.

a. Intermediate preventive maintenance checks and services (para 3–4 and 3–5).

b. Cleaning (para 3–6).

c. Periodic preventive maintenance checks and services (para 3–7 and 3–8).

d. Troubleshooting (para 3–9).

e. Removal and replacement of receiver-transmitter (para 3–11).

f. Removal and replacement of mounting (para 3–12).

g. Removal and replacement of control unit (para 3–13).

h. Adjustment of receiver-transmitter squelch (para 3–14).

3–2. Tools and Materials Required

a. Tool Kit, Repair TK–115/G.

b. Cleaning Compound, Federal stock No. 7930–395–9542.

c. Brush, MIL–G–7241.

d. Fine sandpaper, No. 000.

e. A clean, lint-free cloth.

Section II. ORGANIZATIONAL PREVENTIVE MAINTENANCE PROCEDURE

3–3. Organizational Preventive Maintenance

Preventive maintenance is the systematic care, servicing, and inspection of equipment to prevent the occurrence of trouble, to reduce out-of-service time, and to maintain equipment serviceability.

a. Systematic Care. The procedures given in paragraphs 3–4 through 3–8 cover routine systematic care and cleaning essential to proper upkeep and operation of the equipment.

b. Preventive Maintenance Checks and Services. The preventive maintenance checks and services charts given in paragraphs 3–5 and 3–8 outline the functions to be performed at specific intervals. These checks and services are designed to maintain the radio set in a serviceable condition. The charts list what to check, how to check, and the normal conditions. The *References* column lists the paragraphs or applicable technical manuals that contain supplementary information. If the defect cannot be remedied at organizational maintenance, higher category maintenance is required. Records and reports of these checks must be made in accordance with TM 38–750.

3–4. Organizational Intermediate Preventive Maintenance Checks and Services

Perform the maintenance functions indicated in the intermediate preventive maintenance checks and services chart (para 3–5) once each intermediate interval. An intermediate interval is defined as approximately 25 flying hours. The intermediate preventive maintenance checks and services should be performed concurrently with the intermediate preventive maintenance checks and services scheduled on

the aircraft in which the equipment is installed. Adjustments of the maintenance interval must be made to compensate for any unusual operating conditions. Equipment maintained in a standby (ready for immediate operation) condition must have intermediate maintenance performed at least once every 30 days. Equipment in limited storage (requires service before operation) does not require intermediate maintenance.

3–5. Organizational Intermediate Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	Reference
		POWER-OFF INSPECTION	
1	Exterior surfaces	*a.* Clean control unit, receiver-transmitter, and mounting.	*a.* Paragraph 3–6.
		b. Inspect exposed metal surfaces for rust, corrosion, and bare spots.	*b.* Paragraph 3–6.
2	Cables and connectors	Check all cables for evidence of chafing, cracking, or excessive strain. Refer to higher maintenance category for replacement. Check all electrical connectors for dents, cracks, or improper mating.	
3	Receiver-transmitter	*a.* Check to see that receiver-transmitter (fig. 1–2) is securely mounted.	*a.* Paragraph 3–11.
		b. Check the meter for dirty or broken glass.	*b.* Paragraph 3–6. Refer to higher maintenance category for broken glass.
		c. Check to see that all controls operate smoothly with no binding.	*c.* None.
4	Mounting	Check to see that the mounting (fig. 1–3) is securely fastened to the aircraft frame or rack.	Paragraph 3–12*b*.
		Check to see that the ground straps are secure and that the shock isolators work smoothly. Check for any signs of physical damage.	
5	Control unit	*a.* Check to see that the control unit is securely mounted.	*a.* Paragraph 3–13*b*.
		b. Check the controls for smooth mechanical action and check to see that the knobs are tight.	*b.* None.
6	Antenna system	*a.* Check to see that the antenna is mated securely to the antenna coupler. Tighten if necessary.	*a.* None.
		b. Check to see that the antenna coupler is securely mounted to the aircraft.	*b.* None.
		c. Check the antenna and antenna coupler for physical damage.	*c.* None.
		d. Clean antenna system	*d.* Paragraph 3–6.

Note. If the aircraft engines are operated during the power-on inspection, the pilot or an authorized crewmember will start and operate the engines. If the aircraft engines are not operated, use an auxiliary power source to prevent excessive drain on the aircraft battery. Refer to the aircraft manual for connection and power requirements, and for setting of communication power controls.

7	Primary power	*a.* Set the aircraft primary power on-off switch to on and close the aircraft 27.5–volt dc circuit breaker.	*a.* Paragraph 3–10, item 1*b*.

Sequence No.	Item to be inspected	Procedure	Reference
		POWER-OFF INSPECTION—Continued	
		b. Check to see that the control unit panel lamps light.	*b.* Paragraph 3–10, item 1*a*.
		Note. Brilliancy of lamps is controlled by aircraft panel light control.	
8	Blower	Set the control unit mode control (fig. 2–1) to T/R and check to see that blower in the receiver-transmitter operates.	Paragraph 3–10, item 2.
9	Tuning	Tune the radio set to frequency of a local FM station. A channel-changing tone should be heard in the headset while the radio set is tuning. When the tone stops, the radio set is tuned.	Paragraph 3–10, item 4.
10	Radio set, two-way communications operation.	Establish two-way voice communications with local fm station (para 2–5).	Paragraph 3–10, items 5 through 10.
11	Radio set retransmission operations (used only when two radio sets are installed in the aircraft).	Operate radio sets for retransmit operation (para 2–6).	Paragraph 3–10, item 11.
12	Radio set, homing operation (used when homing facilities are installed in the aircraft).	Operate the radio set for homing operation (para 2–7).	Paragraph 3–10, item 12.

3–6. Cleaning

All exterior surfaces of the equipment should be free of dirt, grease, and fungus. Perform the following procedures as specified in the preventive maintenance checks and services charts.

a. Remove moisture and loose dirt with a clean, soft cloth.

Warning: **Cleaning compound is flammable and its fumes are toxic. Do not use near a flame; provide adequate ventilation.**

b. Remove grease, fungus, and ground-in dirt from the exterior surfaces with a clean cloth dampened (not wet) with cleaning compound. Wipe dry with a clean, dry, lint-free cloth.

Caution: **Do not press on the meter face when cleaning; the meter face may become damaged.**

c. Clean the front panel and controls; use a clean, soft cloth. If dirt is difficult to remove, dampen the cloth with water; if necessary, use mild soap.

d. From the exterior of the receiver-transmitter, clean excessively dirty filter pads by brushing off loose dirt with a dry brush, or vacuum if a vacuum cleaner is available.

e. Remove dust and corrosion from metal surfaces by lightly sanding them with fine sandpaper. Brush two thin coats of paint on the bare metal to protect it from further corrosion. Refer to the applicable cleaning and refinishing practices specified in TB SIG 364.

3–7. Periodic Preventive Maintenance Checks and Services

a. General. Perform the maintenance functions indicated in the periodic preventive maintenance checks and services chart (para 3–8) once each periodic interval in addition to the intermediate preventive maintenance checks and services. Periodic preventive maintenance will be scheduled in accordance with the requirements of TM 38–750. The periodic preventive maintenance inspection should be scheduled concurrently with the periodic maintenance service schedule of the aircraft in

which the equipment is installed to reduce out-of-service time. Refer to the applicable aircraft technical manual for the hours between service periods. Equipment with a deficiency that cannot be remedied at the organizational level should be deadlined in accordance with TM 38–750.

b. Organizational Maintenance Controls and Indicators. In addition to the operator's controls, the following controls and indicators on the receiver-transmitter (fig. 3–1) are used by the organizational repairman.

Control or indicator		Function
TEST SWITCH (six-position rotary switch)	Switch position	Function checked
	1 (+24 V)	Indicates regulated 24–volt dc supply to radio set through fuse F9501 and power regulator section is normal. (TEST METER indicates center scale.)
	2 (+16 V)	Indicates regulated 16–volt dc supply to low voltage-transistor circuit is normal. (TEST METER indicates center scale.)
	3 (AGC)	Indicates low on scale in receive mode unless signal is being received on tuned channel. Depress SQ DIS pushbutton on receiver-transmitter front panel and monitor headset to determine if another station is transmitting on the channel. With XMTR TEST pushbutton depressed, meter indicates agc drive voltage from if. amplifier hunt-cutoff output to transmitter-modulator. When meter indicates above 90 percent of scale, transmitter oscillator and afc system are normal.
		In home mode, meter should indicate near center scale when a signal well above threshold is received. This indicates proper functioning of the agc operation in home mode. Signal levels near threshold will indicate from zero to center scale.
	4 (RF FWD)	When XMTR TEST pushbutton is depressed, meter indicates 10 watts forward power at approximately center scale.
	5 (RF REFL)	When XMTR TEST pushbutton is depressed, meter indicates reflected power from antenna circuit. (Test METER indi-

Control or indicator	Function	
	Switch position	Function checked
		cates not more than quarter scale.) High reflected power indicates antenna system may not be functioning normally. Acceptable reflected power limits depend upon type of aircraft installation and antenna location as well as selected channel frequency.
	6 (OFF)	Meter is disconnected from any circuit.
TEST METER		Scale is 0 to 100 in 10 equal divisions. Permits monitoring of voltage, agc, and power functions of the radio set.
SQ ADJ (squelch adjust) potentiometer		Allows a front panel adjustment of CARR (carrier) squelch signal. Potentiometer is in parallel with an internal potentiometer. Tone squelch level is not adjustable from the front panel. Normal setting of SQ ADJ potentiometer is at a point just above level where ambient noise just cuts out. Satisfactory operation can be checked by periodically depressing SQ DIS pushbutton while monitoring headsets.
SQ DIS (squelch disable) pushbutton		Squelch disabling switch to allow listening to background noise for control unit VOL control setting.
XMTR TEST pushbutton		Keys transmitter for monitoring forward and reflected power and agc without depressing microphone button.
XMTR HI-LO (power output switch)		Selects nominal transmitter power output levels of 10 watts in HI position or 1 watt in LO position. In some radio relay (retransmission) operations, a 1-watt output is desirable.

3—8. Periodic Preventive Maintenance Checks and Services Chart

Sequence No.	Item to be inspected	Procedure	References
1	Publications	Check to see that all publications pertinent to this equipment are on hand, complete, serviceable, and current.	DA Pam 310–4.
2	Modification work orders	Check DA Pam 310–4 to determine whether new applicable MWO's have been published. All URGENT MWO's must be applied immediately. All NORMAL MWO's must be scheduled.	TM 38–750 and DA Pam 310–4.
3	Control unit	*a.* Remove the control unit and check unit and connector for dirt or corrosion.	*a.* Paragraph 3–13*a*.
		b. Clean the control unit	*b.* Paragraph 3–6.
		c. Check the electrical connector for bent or distorted pins or other evidence of improper mating.	*c.* None.
		d. Replace the control unit	*d.* Paragraph 3–13*b*.

Periodic Preventive Maintenance—*CONTINUED*

Sequence No.	Item to be inspected	Procedure	References
4	Receiver-transmitter	*a.* Remove the receiver-transmitter from the mounting and check the unit for dirt or corrosion.	*a.* Paragraph 3–11*a*.
		b. Clean the receiver-transmitter	*b.* Paragraph 3–6.
		c. Check the electrical connectors and guide pins for distortion, bending, or other evidence of improper mating.	*c.* None.
5	Mounting	*a.* With the receiver-transmitter removed, check the mounting for dirt or corrosion; give particular attention to the electrical connector plate assembly (fig. 1–1).	*a.* Paragraph 3–6.
		b. Check the shock isolators for smooth action. Check to see that ground straps are securely fastened.	*b.* Paragraph 3–12.
		c. Replace the receiver-transmitter in the mounting.	*c.* Paragraph 3–13.
6	Antenna system	*a.* Check for cracked or broken fiberglass housing, dirt, and corrosion. Replace antenna or antenna coupler if fiberglass housing is cracked or broken.	*a.* None.
		b. Clean the antenna and antenna coupler.	*b.* Paragraph 3–6.
		Note. If the aircraft engines are operated during the power-on inspection using the TEST METER and TEST SWITCH, the pilot or an authorized crewmember will start and operate the engines. If the aircraft engines are not operated, use an auxiliary power source to prevent excessive drain on the aircraft battery. Refer to the aircraft manuals for connections and power requirements, and for setting of communication power controls.	
7	Preliminary	*a.* Set the aircraft communication controls to on (para 2–4).	*a.* Applicable aircraft technical manual.
		b. Set the control unit for two-way voice communication operation (para 2–5).	*b.* Applicable aircraft technical manual.
8	Metering circuits	After approximately 3 minutes warmup time, observe the receiver-transmitter unit TEST METER (fig. 3–1) while rotating the TEST SWITCH through all positions (para 3–7*b*).	Paragraph 3–10, item 3.
9	Stopping	*a.* Set receiver-transmitter TEST SWITCH (fig. 3–1) to position 6 (OFF).	
		b. Set the control unit mode control (fig. 2–1) to OFF.	
		c. Open the 27.5–volt dc circuit breaker	
		d. Set the aircraft master power switch to off.	

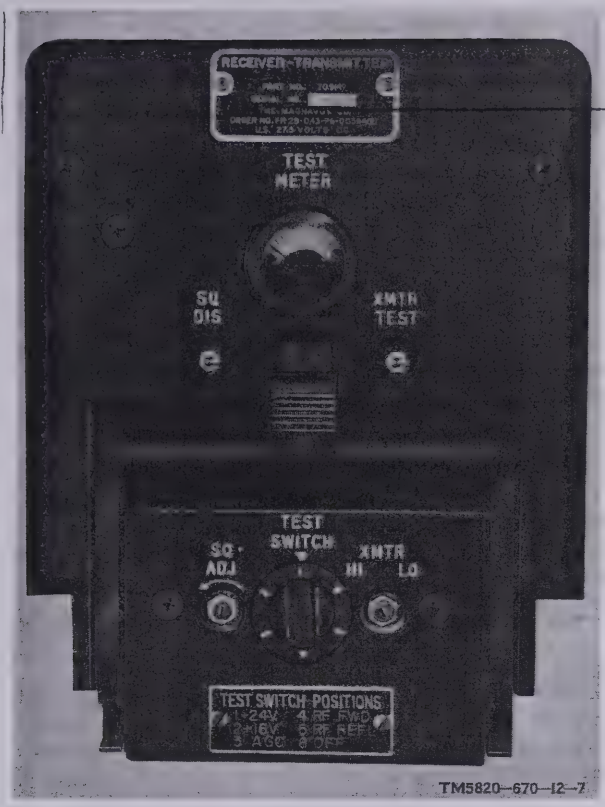


Figure 3–1. Receiver-transmitter front panel controls and indicator.

3–9. General

Troubleshooting at the organizational maintenance level is confined to localizing the trouble to a defective major unit or to such exterior items as knobs, improper mating of connectors, or defective cables or connectors. Troubleshooting of this equipment is based on the operational checks contained in the intermediate and periodic preventive maintenance checks and services charts (para 3–5 and 3–8). To troubleshoot the equipment, perform all checks and services, starting with sequence No. 7 in the intermediate preventive maintenance checks and services chart (para 3–5). When an abnormal condition or result is observed, note the reference in the *References* column and turn to the corresponding item number in the troubleshooting chart (para 3–10). Perform the checks and corrective measures indicated in the troubleshooting chart. If the corrective measures indicated do not result in correction of the trouble, higher category maintenance is required.

3–10. Troubleshooting Chart

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
1	*a.* Control unit panel lamps do not light when aircraft primary power switch is set to on.	*a.* Defective lamp assembly in control unit.	*a.* Remove and replace control unit (para 3–13).
	b. Aircraft 27.5–volt circuit breaker opens when radio set is turned on.	*b.* Primary power is shorted in the control unit or receiver-transmitter.	*b.* Remove and replace receiver-transmitter (para 3–11). If trouble is not corrected, remove and replace control unit (para 3–13).
2	Blower does not operate	Defective blower motor	Remove and replace the receiver-transmitter (para 3–11).
3	TEST METER readings not as specified.	Defective receiver-transmitter	Remove and replace the receiver-transmitter (para 3–11).
4	*a.* Frequency controls do not work properly.	*a.* Defective control unit or loose frequency control knobs.	*a.* Check knobs for tightness; tighten or replace as necessary. Remove and replace control unit if necessary (para 3–13).

Troubleshooting Chart—*CONTINUED*

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
	b. Radio set does not tune to desired frequency (controls working properly).	*b.* Defective control unit or defective receiver-transmitter.	*b.* Remove and replace control unit (para 3–13). If this does not correct fault, remove and replace receiver-transmitter (para 3–11).
	c. Radio set continues to tune (channel tone does not stop).	*c.* Defective receiver-transmitter. Defective control unit or wiring.	*c.* Remove and replace receiver-transmitter (para 3–11). Remove and replace control unit (para 3–13). Check wiring.
5	*a.* Radio set inoperative (no sidetone or signals heard).	*a.* Primary power circuit breaker open. Electrical connectors not properly mated, or control unit or receiver-transmitter.	*a.* Check all electrical connectors and audio cables for proper mating. Remove and replace control unit or receiver-transmitter if necessary (para 3–11 or 3–13).
	b. Excessive hum heard in headset.	*b.* Receiver-transmitter defective. Audio cable shield not properly grounded. Defective interphone.	*b.* Check audio cable shield grounds. Check aircraft interphone system. Remove and replace receiver-transmitter if necessary (para 3–11).
6	Squelch does not operate properly.	*a.* SQ ADJ control improperly set.	*a.* Adjust SQ ADJ control (para 3–14).
		b. Defective control unit or receiver-transmitter.	*b.* Remove and replace control unit. If this does not correct fault, remove and replace receiver-transmitter (para 3–11 or 3–13).
7	No sidetone heard in headset.	Receiver-transmitter defective or defective aircraft interphone system.	Check all audio cables and connectors. Check interphone systems. Remove and replace receiver-transmitter (para 3–11).
8	Audio is distorted ----------	Receiver-transmitter, audio cables, shields, or interphone system.	Check all cable connections. Check interphone system. Replace receiver-transmitter if necessary (para 3–11).
9	*a.* Radio set will receive but will not transmit.	*a.* Receiver-transmitter defective.	*a.* Remove and replace receiver-transmitter (para 3–11).
	b. Radio set will transmit but will not receive.	*b.* Squelch improperly set. Receiver-transmitter defective. Aircraft interphone system defective.	*b.* If signal can be heard with SQUELCH control at DIS, but not at CARR, check squelch adjustments (SQ ADJ control) on receiver-transmitter (para 3–14). (Squelch should be adjusted so that background noise is just silenced but signal is not noticeably reduced.) Check aircraft interphone system. Remove and replace receiver-transmitter (para 3–11).
10	*a.* Radio set works on some frequencies but not on others.	*a.* Control unit or receiver-transmitter defective.	*a.* Remove and replace control unit or receiver-transmitter (para 3–11 or 3–13).

Troubleshooting Chart—*CONTINUED*

Item No.	Trouble symptom	Probable trouble	Checks and corrective measures
	b. Reception and transmission very weak.	*b.* Antenna system or receiver-transmitter defective.	*b.* Check rf cables and connectors at antennas and back of receiver-transmitter. Remove and replace receiver-transmitter if necessary (para 3–11).
11	*a.* Radio set does not operate in RETRAN mode.	*a.* Squelch improperly set on one or both receiver-transmitters. Defective receiver-transmitter, control unit, aircraft interphone system, cabling, or antenna system.	*a.* Check squelch adjustment (SQ ADJ control) on both receiver-transmitters and adjust if necessary (para 3–14). Remove and replace receiver-transmitters one at a time (para 3–11). Remove and replace control units one at a time (para 3–13). Check aircraft interphone system. Check all cabling.
	b. Radio sets oscillate (indicated by rapid fluctuations of noise and sidetone) in RETRAN mode.	*b.* Squelch improperly adjusted or SQUELCH control set to DIS. Receiver-transmitter defective.	*b.* Check SQUELCH control and squelch adjustment (para 3–14). Remove and replace defective receiver-transmitter (para 3–11).
12	Radio set does not operate with mode control set to HOME.	*a.* Received signal strength inadequate.	*a.* Change frequency to local FM station.
		b. Defective control unit _____	*b.* Remove and replace control unit (para 3–13).
		c. Defective receiver-transmitter.	*c.* Remove and replace receiver-transmitter (para 3–11).
		d. Defective homing indicator ____	*d.* Refer to applicable aircraft maintenance manual for replacement.

3–11. Removal and Replacement of Receiver-Transmitter

(fig. 1–2)

a. Removal.

(1) Release the locking handle catch from its secured (down) position and pull the locking handle outward and downward.

(2) Pull out firmly on the locking handle to extract the receiver-transmitter from the mounting.

b. Replacement.

(1) Set the receiver-transmitter on the mounting and slide it back carefully; make sure the guide pins at the rear properly engage the guide pin receptacles.

(2) Lift the locking handle, press inward, and secure with the locking handle catch.

3–12. Removal and Replacement of Mounting

(fig 1–3)

a. Removal.

(1) Remove the four screws, nuts, and spacers that secure the connector plate to the mounting (fig. 1–4) and remove the connector plate.

(2) Remove the eight screws that hold the mounting tray and remove the mounting.

b. Replacement.

(1) Place the mounting in position over

the holes in the aircraft equipment rack or airframe.

(2) Replace the connector plate on the connector plate mounting holes and secure with the mounting screws, nuts, and spacers.

(3) Replace the eight 6–32 mounting screws that hold the mounting to the aircraft equipment rack or airframe.

(4) Tighten the nuts that hold the ground straps.

3–13. Removal and Replacement of Control Unit

(fig. 1–5)

a. Removal.

(1) Disengage the four Dzus fasteners that hold the control unit to the equipment rack and pull the control unit out far enough to reach the electrical connector at the rear of the unit.

(2) Release the electrical connector (twistlock connector) from the unit and remove the unit.

b. Replacement.

(1) Plug the electrical connector into the rear of the control unit and secure it (twistlock connector).

(2) Place the control unit in position and secure it to the equipment rack with the four Dzus fasteners.

3–14. Adjustment of Receiver-Transmitter Squelch

(fig. 3–1)

The squelch adjustment (SQ ADJ control) is on the receiver-transmitter front panel. Set the squelch adjustment as follows:

a. Disconnect the coaxial cable from the communication antenna.

b. Perform the starting procedures (para 2–4).

c. Set the control unit mode control to T/R.

d. Set the control unit SQUELCH control to CARR.

e. With the receiver-transmitter SQ ADJ control turned fully counterclockwise, adjust the control unit VOL control for a comfortable level of background noise as heard in the headset.

f. Rotate the receiver-transmitter SQ ADJ control clockwise until the background noise just cuts out. Do not rotate the control beyond this point.

g. Check the squelch setting on several frequencies. If all frequencies selected are not fully squelched, rotate the SQ ADJ control slightly clockwise.

h. Perform the stopping procedures (para 2–8), and reconnect the coaxial cable to the antenna.

APPENDIX A

REFERENCES

Following is a list of publications available to the organizational repairman of Radio Set AN/ARC–131.

DA Pam 310–4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (types 7, 8, and 9), Supply Bulletins, Lubrication Orders, and Modification Work Orders.
TB SIG 364	Field Instructions for Painting and Preserving Electronics Command Equipment.
TM 11–530	Installation Practices for Aircraft Electric and Electronic Wiring.
TM 38–750	Army Equipment Record Procedures.

APPENDIX B

BASIC ISSUE ITEMS

Section I. INTRODUCTION

B–1. General

This appendix lists items for Radio Set AN/ARC–131, the component items comprising it, and the items which accompany it, or are required for installation, operation, or operator's maintenance.

B–2. Explanation of Columns

An explanation of the columns in section II is given below.

a. Source, Maintenance, and Recoverability Codes, Column 1. Not used.

Note. When no code is indicated in column 1c, the part will be considered expendable.

b. Federal Stock Number, Column 2. Not used.

c. Description, Column 3. The Federal item name is included in this column.

d. Unit of Issue, Column 4. The unit used as a basis of issue (e.g. ea, pr, ft, yd, etc) is noted in this column.

e. Quantity Incorporated in Unit Pack, Column 5. Not used.

f. Quantity Incorporated in Unit, Column 6. The total quantity of the item used in the equipment is given in this column.

g. Quantity Authorized, Column 7. The total quantity of an item required to be on hand and necessary for the operation and maintenance of the equipment is given in this column.

h. Illustration, Column 8. Not used.

(1) SOURCE CD (A)	(1) MAINT. CD (B)	(1) REC. CODE (C)	BASIC ISSUE ITEMS LIST (2) FEDERAL STOCK NUMBER	MODEL 1	2	3	4	5	6	(3) DESCRIPTION	(4) UNIT OF ISSUE	(5) QTY INC IN UNIT PACK	(6) QTY INC IN UNIT	(7) QTY AUTH	(8) ILLUSTRATIONS (A) FIGURE NUMBER	(8) ILLUSTRATIONS (B) ITEM OR SYMBOL NUMBER
										RADIO SET AN/ARC-131: (This item is nonexpendable)	ea					
			ORD THRU AGC							TECHNICAL MANUAL TM 11-5820-670-12	ea		2	2		
										NOTE: For technical manuals the quantity indicates the maximum number of copies authorized for packing with the equipment. Where a number of these equipments are concentrated in a small area, the quantity on hand may be reduced to practical levels. Excess publications must be returned to publication supply centers through AG channels.						
			ORD THRU AGC							TECHNICAL MANUAL TM 11-5821	ea		2	2		
										NOTE: For technical manuals the quantity indicates the maximum number of copies authorized for packing with the equipment. Where a number of these equipments are concentrated in a small area, the quantity on hand may be reduced to practical levels. Excess publications must be returned to publication supply centers through AG channels.						
										RECEIVER-TRANSMITTER RT-823/ARC-131	ea		1	1		
										CONTROL, RADIO C-7088/ARC-131	ea		1	1		
										MOUNTING MT-3664/ARC-131	ea		1	1		
										NO ACCESSORIES, TOOLS, OR TEST EQUIPMENT ARE TO BE ISSUED WITH THIS EQUIPMENT						
										NO BASIC ISSUE ITEMS ARE MOUNTED IN OR ON THIS EQUIPMENT						

APPENDIX C

MAINTENANCE ALLOCATION

Section I. INTRODUCTION

C–1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for Radio Set AN/ARC–131. It authorizes levels of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planning maintenance operations.

C–2. Explanation of Format for Maintenance Allocation Chart

a. Group Number. Group numbers correspond to the reference designation prefix assigned in accordance with ASA Y32.16, Electrical and Electronics Reference Designations. They indicate the relation of listed items to the next higher assembly.

b. Component Assembly Nomenclature. This column lists the item names of component units, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Maintenance Function. This column indicates the maintenance level at which performance of the specific maintenance function is authorized. Authorization to perform a function at any level also includes authorization to perform that function at higher levels. The codes used represent the various maintenance levels as follows:

Code	Maintenance Level
C	Operator/Crew
O	Organizational Maintenance
F	Direct Support Maintenance
H	General Support Maintenance
D	Depot Maintenance

d. Tools and Equipment. The numbers appearing in this column refer to specific tools and equipment which are identified by these numbers in section III.

e. Remarks. Self explanatory.

C–3. Explanation of Format for Tool and Test Equipment Requirements

The columns in the tool and test equipment requirements chart are as follows:

a. Tools and Equipment. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool for the maintenance function.

b. Maintenance Category. The codes in this column indicate the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number.

e. Tool Number. Not used.

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	RADIO SET AN/ARC-131													
	RECEIVER-TRANSMITTER RT-823/ARC-131	O											18	Connectors, Wiring
			O										No facilities required	Operational
				O									18	Clean
					F								7,8,9,10,11, 15,16,17,19, 20	
						H							1,2,3,4,8,9, 10,12,13,16, 17,19,20	Max. Trans. output Max. Rec. Sensitivity
							F						6,7,8,9,10,11, 15,16,17,19, 20	Tuning accuracy
								O					18	
									O				18	Entire set
										F			19,20	
											D		19,20	
												D	19,20	
			F										5/17,19,20	Test and replace modules
			D										1,2,3,4,5,7, 8,9,10,11,12, 13,14,15,16, 17	
	MOUNTING MT-3	O											18	Connector wiring
			O										No facilities required	Operation mechanical, electrical
				O									18	Clean
								O					18	Exchange
												D		

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	AN/ARC-131 (continued)													
	CONTROL, RADIO SET C-7088/ARC-131	0											18	Connector wiring
			0										No facilities required	Operation
				0									18	Clean
								0					18	Replace unit
										F			7,19,20	Replace switches, wiring
									0				18	Knobs, lamps
												D	13,19,20	

TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
		AN/ARC-131 (continued)		
1	GS,D	ANALYZER, SPECTRUM TS-723B/U	6625-668-9418	
2	GS,D	GENERATOR, SIGNAL AN/URM-127	6625-783-5965	
3	GS,D	COUNTER ELECTRONIC, DIGITAL RECORDER AN/USM-207	6625-911-6368	
4	GS,D	METER, MODULATION ME-57/U	6625-647-3737	
5	DS,GS,D	TEST SET, RADIO AN/VRM-1	6625-892-5542	
6	DS	MULTIMETER AN/URM-105/U	6625-581-2036	
7	DS,GS,D	MULTIMETER ME-26B/U	6625-646-9409	
8	DS,GS,D	OSCILLOSCOPE AN/USM-140A	6625-066-2525	
9	DS,GS,D	R. F. SIGNAL GENERATOR SET AN/URM-25	6625-643-1548	
10	DS,GS,D	R. F. WATTMETER AN/URM-120	6625-813-8430	
11	DS,GS,D	SIGNAL GENERATOR SG-297( )/U	6625-868-8362	
12	GS,D	SIGNAL GENERATOR TS-452/U	6625-828-6410	
13	GS,D	VOLTMETER METER ME-30/U	6625-643-1670	
14	D	HETRODYNE VOLTMETER AN/GRM-76	6625-954-3498	
15	DS,GS,D	MULTIMETER TS-352/U	6625-242-5032	
16	DS,GS,D	GENERAL PURPOSE DUMMY LOAD DA-75/U	5985-280-3480	
17	DS,GS,D	MAINTENANCE KIT MK-1035/ARC-131		
18	O	TOOL KIT, ELECTRONIC EQUIPMENT TK-115/G	5180-856-1578	
19	DS,GS,D	TOOL KIT, ELECTRONIC EQUIPMENT TK-100/G	5180-605-0079	
20	DS,GS,D	TOOL KIT, ELECTRONIC EQUIPMENT TK-105/G	6625-581-2036	

CHANGE
No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *21 April 1969*

Operator's and Organizational Maintenance Manual
Including Repair Parts and Special Tool Lists
RADIO SET AN/ARC-131

TM 11-5820-670-12, 13 December 1966, is changed as follows:

The title of the manual is changed as shown above.

Page 1-1, paragraph 1-2. Delete and substitute:

1-2. Index of Publications

a. DA Pam 310-4. Refer to DA Pam 310-4 to determine whether there are new editions, changes, or additional publications pertaining to the equipment.

b. DA Pam 310-7. Refer to DA Pam 310-7 to determine whether there are Modification Work Orders (MWO's) pertaining to the equipment.

Paragraph 1-3. Delete and substitute:

1-3. Forms and Records

a. Reports of Maintenance and Unsatisfactory Equipment. Use equipment forms and records in accordance with instructions in TM 38-750.

b. Report of Packaging and Handling Deficiencies. Fill out and forward DD Form 6 (Report of Packaging and Handling Deficiencies) as prescribed in AR 700-58 (Army), NAVSUP Publication 378 (Navy), AFR 71-4 (Air Force), and MCO P4610-5 (Marine Corps).

c. Discrepancy in Shipment Report (DISREP) (SF361). Fill out and forward Discrepancy in Shipment Report (DISREP) (SF361) as prescribed in AR 55-38 (Army), NAVSUP Pub 459 (Navy), AFM 75-34 (Air Force), and MCO P4610.19 (Marine Corps).

d. Report of Equipment Manual Improvements. Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to Commanding General, U. S. Army Electronics Command, ATTN: AMSEL-ME-NMP-AC, Fort Monmouth, N. J. 07703.

Page B-1. appendix B. Delete appendix B and substitute:

APPENDIX B
BASIC ISSUE ITEMS
Section I. INTRODUCTION

B-1. Scope

This appendix lists items comprising an operable equipment and those required for installation, operation, or operator's maintenance for Radio Set AN/ARC-131.

B-2. Explanation of Columns

The following is a list of explanations of columns in section II.

a. Source, Maintenance, and Recoverability Codes (SMR) Column. Not used.

Note. When no code is indicated in the recoverability column, the part will be considered expendable.

b. Federal Stock Number Column. This column indicates the Federal stock number for the item.

c. Description Column. This column includes the Federal item name and any additional description of the item which may be required. A part number or other reference

number is followed by the applicable five-digit Federal Supply Code for Manufacturers. Usable on code column is not used.

d. Unit of Measure Column. The unit used as a basis of measure (e.g., ea, pr, ft, yd, etc.) is given in this column.

e. Quantity Incorporated in Unit Column. The total quantity of the item used in the equipment is given in this column.

f. Quantity Furnished with Equipment Column. This column lists the quantity of the item supplied for initial operation of the equipment and/or the quantities authorized to be kept on hand by the operator for maintenance of the equipment.

g. Illustrations Column.

(1) *Figure number (a).* The number of the illustration on which the item is shown is indicated in this column.

(2) *Item No. or reference designation (b).* Not used.

SECTION II. BASIC ISSUE ITEMS

(1) SMR CODE	(2) FEDERAL STOCK NUMBER	(3) DESCRIPTION Reference Number & Mfr Code — USABLE ON CODE	(4) UNIT OF MEAS	(5) QTY INC IN UNIT	(6) QTY FURN WITH EQUIP	(7) ILLUSTRATIONS (a) FIG. NO.	(7) ILLUSTRATIONS (b) ITEM NO. OR REFERENCE DESIGNATION
	5821-937-4686	RADIO SET, AN/ARC-131: 709113-802; 37695 (This item is nonexpendable)				1-1	
		TECHNICAL MANUAL TM 11-5820-670-12	ea	1	1		
		Requisition through pinpoint account number if assigned; otherwise through nearest Adjutant General facility.					
		A quantity of one technical manual is packed with each equipment. Where a valid need exists, additional copies may be requisitioned and kept on hand.					
		NO ACCESSORIES, TOOLS OR TEST EQUIPMENT ARE TO BE ISSUED WITH THIS EQUIPMENT					
		THE FOLLOWING ITEMS ARE MOUNTED IN OR ON THE EQUIPMENT FOR STORAGE PURPOSES					
		MOUNT MT-3664/ARC-131					
	5935-089-8052	CONNECTOR KIT, ELECTRONICS EQUIPMENT: 1					

Page C-1, appendix C. Delete appendix C and substitute:

APPENDIX C
MAINTENANCE ALLOCATION
Section I. INTRODUCTION

C-1. General

This appendix provides a summary of the maintenance operations covered in the equipment literature for Radio Set AN/ARC-131. It authorizes categories of maintenance for specific maintenance functions on repairable items and components and the tools and equipment required to perform each function. This appendix may be used as an aid in planing maintenance operations.

C-2. Explanation of Format for Maintenance Allocation Chart

a. Group Number. Group numbers correspond to the reference designation prefix assigned in accordance with ASA Y32.16, Electrical and Electronics Reference Designations. They indicate the relation of listed items to the next higher assembly.

b. Component Assembly Nomenclature. This column lists the item names of component units, assemblies, subassemblies, and modules on which maintenance is authorized.

c. Maintenance Function. This column indicates the maintenance category at which performance of the specific maintenance function is authorized. Authorization to perform a function at any category also includes authorization to perform that function at higher categories. The codes used represent the various maintenance categories as follows:

Code	*Maintenance Category*
C	Operator/Crew
O	Organizational Maintenance
F	Direct Support Maintenance
H	General Support Maintenance
D	Depot Maintenance

d. Tools and Equipment. The numbers appearing in this column refer to specific tools and equipment which are identified by these numbers in section III.

e. Remarks. Self explanatory.

C-3. Explanation of Format for Tool and Test Equipment Requirements

The columns in the tool and test equipment requirements chart are as follows:

a. Tools and Equipment. The numbers in this column coincide with the numbers used in the tools and equipment column of the MAC. The numbers indicate the applicable tool for the maintenance function.

b. Maintenance Category. The codes in this column indicate the maintenance category normally allocated the facility.

c. Nomenclature. This column lists tools, test, and maintenance equipment required to perform the maintenance functions.

d. Federal Stock Number. This column lists the Federal stock number.

e. Tool Number. Not used.

SECTION II. MAINTENANCE ALLOCATION CHART

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
1	RADIO SET AN/ARC-131	O	O	O					O	O			1,2	Repair by component, replacement
2	CONTROL, RADIO SET C-7088/ARC-131	O											None	Visual
			O										1,2	Plug and wiring
				O									1	Clean
								O					1	
									O				1	
										O			1	Knob replacement
											H		4,6,7,8	
										F			3,4,6,7	
3	MOUNTING MT-3	O											None	Visual
			O										2	Plug, wiring
				O									1	Clean
								O					1	
									O				1	
										F			3,4,6	Replace connector plate

MAINTENANCE ALLOCATION CHART

GROUP NUMBER	COMPONENT ASSEMBLY NOMENCLATURE	MAINTENANCE FUNCTIONS											TOOLS AND EQUIPMENT	REMARKS
		INSPECT	TEST	SERVICE	ADJUST	ALIGN	CALIBRATE	INSTALL	REPLACE	REPAIR	OVERHAUL	REBUILD		
	AN/ARC-131 (cont)													
4	RECEIVER-TRANSMITTER RT-823/ARC-131	O											1	Connector, wiring
			O										1,2	Operational and test meter, wiring
				O									1	Clean
					F								4,16	Gear train
						F							4 thru 20,22, 24	Max trans output rec sensitivity
									O				1	RT-823/ARC-131
										F			3,4	Replace **defective** component and modules
			H			H							4 thru 20,22, 23,24	If sensitivity test
												D	4 thru 24	
			F								H		4 thru 20,22,	Test for defective components and modules
										*D				**Return modules to depot for evaluation.**

SECTION III. TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
		AN/ARC-131 (cont)		
1	O	TOOL KIT TK-101/G	5180-064-5178	
2	O	MULTIMETER AN/URM-105	6625-581-2036	
3	F,H,D	TOOL KIT TK-105/G	5180-610-8177	
4	F,H,D	TOOL KIT TK-100/G	5180-605-0079	
5	F,H,D	TOOL SET AN/URM-1	6625-892-5542	
6	F,H,D	MULTIMETER TS-352B/U	6625-553-0142	
7	F,H,D	MULTIMETER ME-26D/U	6625-646-9409	
8	F,H,D	VTVM ME-30E/U	6625-643-1670	
9	F,H,D	WATTMETER AN/URM-120	6625-813-8430	
10	F,H,D	SPECTRUM ANALYZER TS-723	6625-668-9418	
11	F,H,D	MODULATION METER ME-57/U	6625-647-3737	
12	F,H,D	SIGNAL GENERATOR AN/USM-44	6625-669-4031	
13	F,H,D	VOLTMETER, ELECTRONIC AN/URM-145	6625-973-3986	
14	F,H,D	AUDIO GENERATOR AN/URM-127	6625-783-5965	
15	F,H,D	WATTMETER TG-2609/U	6625-933-8786	
16	F,H,D	MAINTENANCE KIT MK-1035/ARC-131	5821-935-0058	
17	F,H,D	OSCILLOSCOPE AN/USM-140	6625-987-6603	
18	F,H,D	TESTER, TORQUE DIAL (Waters Model 65103)	6625-805-3652	
19	F,H,D	DUMMY LOAD DA-75/U	6625-930-1810	
20	F,H,D	HEADSET H-78E/AIC	5965-636-3145	

TOOL AND TEST EQUIPMENT REQUIREMENTS

TOOLS AND EQUIPMENT	MAINTENANCE CATEGORY	NOMENCLATURE	FEDERAL STOCK NUMBER	TOOL NUMBER
		AN/ARC-131 (cont)		
21	H,D	STROBOSCOPE TS-805C/U	6625-223-5150	
22	H,D	STOPWATCH	6645-719-8670	
23	H,D	COUNTER, ELECTRONIC DIGITAL AN/USM-207	6625-911-6368	
24	H,D	GENERATOR, SIGNAL AN/URM-103	6625-868-8352	

Page C-4. Add appendix D after appendix C.

APPENDIX D
ORGANIZATIONAL REPAIR PARTS LIST

Section I. INTRODUCTION

D-1. Scope

This appendix contains a list of repair parts required for the performance of organizational maintenance for Radio Set AN/ARC-131.

Note. No special tools, test, and support equipment are required.

D-2. General

The repair parts list is divided into the following sections.

a. Prescribed Load Allowance (PLA), Section II. The PLA is a consolidated listing of repair parts allocated for initial stockage at the organizational maintenance category. This is a mandatory minimum stockage allowance.

b. Repair Parts for Organizational Maintenance, Section III. Repair parts authorized for organizational maintenance are included in this section.

c. Federal Stock Number Cross Reference to Index Number, Section IV. This is a cross reference index of Federal stock numbers to index numbers.

D-3. Explanation of Columns

An explanation of the columns is given below.

a. Source, Maintenance, and Recoverability Code (ABC) Column.

(1) *Source code (A).* The selection status and source for the listed items is noted here. Source code and its explanation is as follows:

Code	*Explanation*
P	Applies to repair parts that are stocked in or supplied from GSA/DSA, or Army supply system, and authorized for use at indicated maintenance categories.

(2) *Maintenance code (B).* The lowest category of maintenance authorized to install the listed item is noted here.

Code	*Explanation*
O	Organizational Maintenance

(3) *Recoverability code (C).* Not used.

Note. When no code is indicated in the recoverability column, the part will be considered expendable.

b. Federal Stock Number Column. The Federal Stock Number for the item is listed in this column.

c. Description Column. The sequence number (index number), Federal item name, a five-digit manufacturer's code, and a part number are included in this column. For subsequent appearance of the same item, the manufacturer's code and part number are omitted. The words "SAME AS" followed by the sequence number assigned to the item when it first appeared in the list will follow the item name, e.g., "RESISTOR, FIXED, COMPOSITION: SAME AS A298." Model column is not used.

d. Unit of Issue Column. The unit used as a basis of issue (e.g., ea, pr, ft, yd, etc.) is indicated in this column.

e. Quantity Incorporated in Unit Pack Column. The actual quantity contained in the unit pack is indicated in this column.

f. Quantity Incorporated in Unit Column. The quantity of repair parts in an assembly is given in this column. Subsequent appearances of the same item in the same assembly are indicated by the letters "REF."

g. Maintenance Allowances Column.

(1) The maintenance allowance column is divided into subcolumns. Indicated in each subcolumn opposite the first appearance of each item is the total quantity of items authorized for the number of equipments supported. Subsequent appearances of the same item will have no entry in the allowance columns but will have a reference in the description column to the first appearance of the item. Items authorized for use as required, but not for initial stockage, are identified with an asterisk (*) in the allowance column.

(2) The quantitative allowance for organizational category of maintenance represents one initial prescribed load for a 15-day period for the number of equipments supported. Units and organizations authorized additional prescribed loads will multiply the number of prescribed loads authorized by the quantity of repair parts reflected in the appropriate

density column to obtain the total quantity of repair parts authorized.

(3) Subsequent changes to organizational allowances will be limited as follows: No change in the range of items is authorized. If additional items are considered necessary, recommendation should be forwarded to Commanding General, U. S. Army Electronics Command, ATTN: AMSEL-ME-NMP-AC, Fort Monmouth, N. J. 07703, for exception or revision to the allowance list. Revisions to the range of items authorized will be made by the USA ECOM National Maintenance Point based upon engineering experience, demand data, or TAERS information.

h. Illustrations Column.

(1) *Figure number column (A).* The number of the illustrations in which the item is shown is indicated in this column.

(2) *Item or symbol number (B).* Not used.

D-4. Location of Repair Parts

a. This appendix contains one cross-reference index (sec IV), to be used to locate a repair part when the Federal stock number is known. The first column of the cross-reference index is prepared in numerical sequence. The last column lists the index number assigned to the part.

b. Refer to the cross-reference index and note the index number in the last column; then refer to the repair parts list to locate the index number which is listed in ascending order in column 3 of the repair parts list.

D-5. Federal Supply Codes

This paragraph lists the Federal supply code and the associated manufacturer's name.

Code	*Manufacturer's Name*
22040	Felsenthal Instruments Co.
37695	The Magnavox Company
81349	Military Specifications

PRESCRIBED LOAD ALLOWANCE

(1) FEDERAL STOCK NUMBER	(2) DESCRIPTION	(3) 15—DAY ORG. MAINT. ALLOWANCE (A) 1—5	(B) 6—20	(C) 21—50	(D) 51-100	(4) QTY INC IN UN PK
	GROUP IV RECEIVER TRANSMITTER, RT-823/ARC-131					
5920-284-6787	C591 FUSE: 81349; F02A250V52	2	2	3	6	1

(1) SOURCE CD (A)	(1) MAINT. CD (B)	(1) REC. CODE (C)	REPAIR PARTS FOR ORGANIZATIONAL MAINTENANCE (2) FEDERAL STOCK NUMBER	MODEL 1	2	3	4	5	6	(3) DESCRIPTION	(4) UNIT OF ISSUE	(5) QTY INC IN UN PK	(6) QTY INC IN UNIT	(7) 15 DAY ORG. MAINT. ALW. (A) 1-5	(B) 6-20	(C) 21-50	(D) 51-100	(8) ILLUSTRATIONS (A) FIGURE NUMBER	(B) ITEM OR SYMBOL NUMBER
			5821-937-4686							A001 RADIO SET AN/ARC-131 (This item is nonexpendable)									
										GROUP I CONTROL, RADIO SET, C-7088/ARC-131									
P	0		5355-891-6123							A516 KNOB: 22040; FNA1836-126-440	Ea	1	1	*	*	*	*	2-1	
P	0		5355-089-8691							A517 KNOB: 37695; 145016-201	Ea	1	4	*	*	*	*	2-1	
P	0		5355-089-8557							A518 KNOB: 37695; 667949-203	Ea	1	2	*	*	*	*	2-1	
										GROUP II MOUNTING, MT-3664/ARC-131									
										NO PARTS AUTHORIZED AT ORGANIZATIONAL MAINTENANCE CATEGORY									
										GROUP III RECEIVER-TRANSMITTER, RT-823/ARC-131									
P	0		5920-284-6787							C591 FUSE: 81349; F02A250V5A	Ea	1	2	2	2	3	6		
P	0		5920-284-6787							C591A FUSE: SAME AS C591	Ea	1	REF						
P	0		5355-990-5266							C715 KNOB: 37695; 147923-1	Ea	1	1	1	*	*	*	3-1	

SECTION IV. INDEX-FEDERAL STOCK NUMBER CROSS REFERENCE TO INDEX NUMBER

FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.	FEDERAL STOCK NUMBER	INDEX NO.
5355-089-8557	A518				
5355-089-8691	A517				
5355-891-6123	A516				
5355-990-5266	C715				
5821-937-4686	A001				
5920-284-6787	C591				

By Order of the Secretary of the Army:

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Chief of Staff.

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Distribution:

To be distributed in accordance with DA Form 12-36, Organizational Maintenance requirements for All Fixed and Rotor Wing Aircraft Accounts (2 cys).

☆U.S. GOVERNMENT PRINTING OFFICE: 1969-342-016/2818

☆ U. S. GOVERNMENT PRINTING OFFICE : 1970 397-111 (544)